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## SERIAL OCT AND HISTOPATHOLOGY ANALYSIS FOLLOWING 1ST AND NEW GENERATION DRUG ELUTING STENTS IMPLANTATION IN SWINE CORONARY ARTERY

i2 Poster Contributions

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**Background:** We serially evaluated vascular response to new generation everolimus-eluting stent (EES) and biolimus A9-eluting biodegradable polymer stent (BES) in comparison with sirolimus-eluting stent (SES) by optical coherence tomography (OCT).

**Methods:** 6 stent each were implanted in coronary arteries of 6 miniature swine and assessed by OCT subsequently at 1-month and 6-month. In every 1mm cross section, neointimal thickness (NIT), neointimal unevenness score (NUS) and % uncovered strut were measured. At 1-month, the ratio of OCT intensity of neointimal tissue (It) and intensity of strut (Is) were measured, and histopathology analysis was done at 6-month.

**Results:** At 1-month, EES showed highest NIT and the lowest %uncovered strut and NUS compared with BES and SES. It/Is was lowest in SES. At 6-month, NIT, NUS and %uncovered strut were equivocal, while  $\Delta$ NIT was lowest in EES (Table).  $\Delta$ NIT was correlated with 6-month inflammation score ( $r=0.523$ ,  $P<0.001$ ).

**Conclusions:** SES revealed uneven tissue coverage with different light properties at 1-months, leading to overshoot neointimal proliferation and persistent inflammation at 6-month. On the other hand, EES seems to have most pro-healing advantage.

		EES	BES	SES	P value
1-month OCT	NIT( $\mu$ m)	269 $\pm$ 98	198 $\pm$ 103	102 $\pm$ 63	0.006
	NUS	1.4 $\pm$ 0.1	2.5 $\pm$ 1.3	3.2 $\pm$ 1.5	0.01
	%uncover	0.4 $\pm$ 0.8	24.5 $\pm$ 23.8	41.7 $\pm$ 27.0	0.004
	It/Is	0.75 $\pm$ 0.06	0.75 $\pm$ 0.06	0.73 $\pm$ 0.08	0.002
6-month OCT	NIT( $\mu$ m)	572 $\pm$ 219	603 $\pm$ 73	616 $\pm$ 68	0.86
	NUS	1.4 $\pm$ 0.2	1.3 $\pm$ 0.1	1.3 $\pm$ 0.1	0.30
	%uncover	0	0	0	1.00
	$\Delta$ NIT (NIT 6mo - NIT 1mo)	303 $\pm$ 140	404 $\pm$ 50	514 $\pm$ 55	0.002
6-month Histo	Inflammation score	0.39 $\pm$ 0.6	0.28 $\pm$ 0.29	1.63 $\pm$ 1.53	0.04